

Research on the English Translation of Meteorological Texts from the Perspective of Eco-Translatology: A Case Study of the English Version of *Responding to Climate Change: China's Policies and Actions*

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Abstract

This paper draws on the Eco-translatology to examine the translation process from an ecological perspective, using the English version of *Responding to Climate Change: China's Policies and Actions* as a case study to explore the English translation of meteorological texts. The translation of such texts is a multifaceted process that requires careful selection and adaptation. It must not only maintain linguistic fidelity to the source text but also reflect cultural diversity, ensuring recognition and acceptance by the target audience. This study will primarily analyze the linguistic, cultural, and communicative dimensions, investigating how ecological adaptation can guide the selection of translation strategies to achieve optimal adaptive transformation and align with the ecological environment of the target language.

Keywords: Eco-Translatology, meteorological texts, adaptive transformation, responding to climate change: china's policies and actions

1. Introduction

With the intensification of global climate change, the translation of meteorological texts is playing an increasingly important role in international communication and cooperation. The issue of global climate change has also continuously propelled meteorological texts to become a significant medium for international dissemination. Meteorological texts not only involve complex meteorological knowledge but also encompass a large amount of policies, regulations, and technical terminology. The quality of their translation directly impacts the cross-border dissemination of climate governance concepts and the international community's understanding and cooperation on climate change issues. The white paper "Responding to Climate Change: China's Policies and Actions" (hereinafter referred to as the "White Paper"), as an authoritative document at the national level for explaining climate strategies externally, combines scientific rigor with political orientation. The effectiveness of its English translation not only involves the accurate transmission of technical information but also concerns the construction of international discourse power and the external interpretation of ecological civilization concepts. This practical demand has spurred in-depth exploration of translation theories for meteorological texts, and Eco-Translatology, with its unique holistic ecological perspective, provides a novel research angle for the translation of such texts that are both scientific and political. Based on Hu Gengshen's "Three-Dimensional Transformation" theory of Eco-Translatology, this study explores translation strategies for meteorological texts across the "linguistic-cultural-communicative" dimensions, aiming to provide theoretical reference and practical guidance for the translation of similar texts.

2. Research on the Translation of Meteorological Texts

Current academic research on meteorological science and technology translation primarily focuses on micro-linguistic aspects such as terminology standardization (e.g., the translation of core concepts in IPCC reports) and syntactic structure comparison (e.g., the conversion of passive voice). Although some scholars have begun to pay attention to the contextual characteristics of scientific text translation, the systematic application of an ecological

holistic perspective to the study of meteorological policy texts remains a gap in the literature. This theoretical deficiency has led to existing research being unable to comprehensively explain the unique contradictions in meteorological policy translation: how to maintain the seriousness of climate policy while achieving discourse affinity? How to balance the objectivity of technical texts with the subjectivity of political texts? Addressing these questions urgently requires the establishment of a more inclusive theoretical framework.

This study selects the English translation of the “White Paper” as the research object, primarily based on three considerations. First, the text exemplifies the characteristics of a composite climate policy document, encompassing both quantitative indicators such as greenhouse gas emission reduction targets and cultural discourses like the concept of ecological civilization. Second, as a government white paper, its translation process vividly reflects the multidimensional adaptation challenges inherent in national translation practices. Third, the actual dissemination effects of the existing English translation in international contexts, such as the United Nations Climate Change Conferences, provide an empirical foundation for validating the effectiveness of Eco-translatology. By constructing a three-dimensional analytical model of “language-culture-communication”, this study aims to reveal the ecological adaptation mechanisms in meteorological text translation and explore effective pathways for reconstructing the target-language ecology while preserving the integrity of the source-language ecology.

3. Case Analysis from the Perspective of Eco-Translatology

3.1 Introduction to Eco-Translatology

Eco-Translatology, as an indigenous Chinese translation theory, was proposed by Professor Hu Gengshen in the early 21st century. Its theoretical roots can be traced back to Darwin’s “adaptation/selection” theory, while also integrating ecology, systems theory, and traditional Chinese ecological philosophy. In his seminal work *Translation as Adaptation and Selection* (2001), Hu Gengshen first introduced the core proposition that “translation is adaptation and selection”, defining translation activity as “the translator’s adaptive selection within the translational eco-environment.” Breaking through the limitations of traditional linguistic paradigms, this theory conceptualizes translation as a dynamic ecosystem composed of multiple dimensions, including language, culture, communication, and society. It emphasizes the translator’s role as a “balancer” between the source and target eco-environments, advocating for the achievement of ecological balance through “adaptive selection and transformation.” The core idea is that the success of translation depends on the translator’s ability to adaptively transform across the “linguistic, cultural, and communicative dimensions,” ultimately realizing the harmonious coexistence of the source and target eco-environments (Hu Gengshen, 2008).

3.2 The “Three-Dimensional Transformation” Theory

In Eco-Translatology, adaptation and selection primarily focus on the “Three-Dimensional Transformation” theory, encompassing the linguistic, cultural, and communicative dimensions. Under the translation principle of “multi-dimensional selective adaptation and adaptive selection,” the “Three-Dimensional Transformation” theory has been widely applied in translation practice and research, particularly in the transformation of language, culture, and communication (Hu Gengshen, 2017). Adaptation and selection at the linguistic dimension refer to the translator’s continuous and cyclical process of adaptation and selection during translation, which occurs at various levels and aspects. Adaptation and selection at the cultural dimension involve the translator’s understanding of the historical and cultural essence of both languages, balancing the differences between the two cultures while identifying their commonalities. Adaptation and selection at the communicative dimension are of paramount importance, as the translator must emphasize the purpose of translation, ensuring that the target text reflects the communicative intent of the source text (Hu Gengshen, 2013).

3.2.1 Adaptive Transformation at the Linguistic Dimension

The adaptive transformation at the linguistic dimension in Eco-Translatology requires translators to avoid word-for-word translation and instead fully leverage the initiative and creativity of “translator subjectivity” to ensure that the target text aligns more closely with the linguistic and cognitive habits of the target audience. Chinese and English differ significantly in terms of morphology, syntax, and semantic expression conventions. During translation, translators must consider the nuanced interpretation of specific Chinese characters and make necessary adjustments to sentence structures.

Example 1:

ST: 面对气候变化严峻挑战, 中国愿与国际社会共同努力、并肩前行, 助力《巴黎协定》行稳致远, 为全球应对气候变化作出更大贡献。

TT: Confronted by the challenges of climate change, China is willing to work together with the international community to ensure the Paris Agreement delivers steady and lasting results, and make greater contribution to the global response.

Analysis: The phrase “行稳致远” in the original text is a Chinese idiom meaning “to proceed steadily and strive for progress.” In translation, the translator rendered it as “delivers steady and lasting results,” which more intuitively conveys China’s willingness to work with other nations to promote the implementation of the Paris Agreement and achieve long-term, stable outcomes. In this example, the translator avoided a word-for-word translation and instead fully exercised translator subjectivity, ensuring that the target text aligns more closely with the linguistic and cognitive habits of the target audience. Additionally, Chinese thinking tends to emphasize dialectical logic, often resulting in looser sentence structures, while English emphasizes formal logic, leading to more tightly structured sentences. The original text employs rhetorical devices such as parallelism and progression, combining long and short sentences in a seemingly loose yet highly expressive manner. Therefore, when translating longer sentences, greater emphasis should be placed on formal logic.

Example 2:

ST: 中国把握污染防治和气候治理的整体性，以结构调整、布局优化为重点，以政策协同、机制创新为手段，推动减污降碳协同增效一体谋划、一体部署、一体推进、一体考核。

TT: China sees pollution prevention and control as an integral part of the response to climate change. Through structural adjustment, optimized configuration, policy synergy and innovative mechanisms, efforts to reduce pollution and carbon emissions are planned and carried out in tandem, and the performance assessment of the two is also conducted jointly. Balancing environmental, climate and economic gains, China has found a unique path to reducing greenhouse gas emissions that conforms to its actual conditions.

Analysis: In Chinese, there is generally no conscious distinction between the subject and object of thought, and nouns with lifelike connotations are often used as subjects. In contrast, English strictly distinguishes between subjects and objects. In the original text, the subject is “China,” and the verb phrase is “以结构调整、布局优化为重点，以政策协同、机制创新为手段，推动减污降碳……”。 However, to align with English expression conventions, the translator chose to use the passive voice, rendering the sentence as “efforts to reduce pollution and carbon emissions are planned and carried out...” and connecting the four noun phrases—“structural adjustment,” “optimized configuration,” “policy synergy,” and “innovative mechanisms”—with the preposition “through.” This approach avoids the issue of simple noun juxtaposition and overly lengthy sentence structures. Such a treatment achieves optimal adaptive transformation at the linguistic dimension while preserving the essence of the source text. Therefore, through the application of Eco-Translatology, translators can effectively communicate China’s stories, voices, and climate governance policies and solutions to foreign audiences with vastly different linguistic and cultural backgrounds. By remaining faithful to the original ideas while adapting to the linguistic, cognitive, and cultural habits of foreign readers, translators can achieve a balance between the source-language ecology and the target-language ecology.

3.2.2 Adaptive Transformation at the Cultural Dimension

There are usually certain differences between the source language cultural ecology and the target language cultural ecology, especially the differences between Chinese and Western cultures, which are reflected in various aspects such as thinking patterns, values and ideologies. Translation is a process of comparison, collision and mutual integration between different cultures. Especially for the translation of climate-related documents, as it is targeted at audiences with different cultural backgrounds, it is necessary to take into account the language environment and cultural connotations, as well as the accuracy of concepts and the acceptance of the audience. While conveying the language, the cultural information contained in meteorological terms should be transmitted to the target language. Translators should strive to overcome the obstacles brought by cultural differences, maintain the balance and harmony of the cultural ecology of the two languages, and ensure the smooth realization of information exchange.

Example 3:

ST: 绿水青山就是金山银山，保护生态环境就是保护生产力，改善生态环境就是发展生产力。

TT: China holds the view that lucid waters and lush mountains are invaluable assets, and that eco-environmental protection and improvement lead to greater productivity.

Analysis: The underlined part reflects a cultural ideal in the Chinese context and provides powerful ideological guidance for us to build a beautiful China in the new era. In terms of climate governance, China has always adhered to its ideals and put them into practice with down-to-earth efforts. During the translation, the translator retained

the sentence arrangement of the original text and translated it as “lucid waters and lush mountains are invaluable assets”, which directly revealed the fact that protecting the ecological environment is protecting productivity, and improving the ecological environment is developing productivity. The translation overcomes the obstacles caused by cultural differences, maintains the balance and harmony of the cultural ecology of the two languages, and ensures the smooth realization of information exchange.

Example 4:

ST: 地球是人类唯一赖以生存的家园，面对全球气候挑战，人类是一荣俱荣、一损俱损的命运共同体，没有哪个国家能独善其身。

TT: The earth is the only home we have. Human beings share a common future in the face of the challenges presented by global climate change, and no country can make itself immune from the impact.

Analysis: The phrase “一荣俱荣、一损俱损” originates from Dream of the Red Chamber by the Qing Dynasty writer Cao Xueqin. It means that the rise or fall of one affects all, illustrating the interconnectedness of shared interests. It metaphorically describes a situation where the success, failure, honor, or disgrace of one part of a connected whole impacts all other parts equally. China calls on all nations to strengthen unity and promote cooperation in the process of climate governance, working together to build a shared future for humanity. This concept represents a new proposal put forward by China. While it carries a positive connotation in Chinese culture, its meaning can be challenging to convey accurately across different cultural contexts. Therefore, in translation, the translator restructured the original sentence, using “share a common future” to express “一荣俱荣、一损俱损” and “make itself immune from...” to convey “独善其身.” This approach makes the translation more intuitive and clear while maintaining structural integrity. Additionally, such phrasing better adapts to the cultural ecology of the target language, enabling the audience to accurately grasp the intended meaning and achieving adaptive transformation at the cultural dimension.

3.2.3 Adaptive Transformation at the Communicative Dimension

Eco-Translatology emphasizes a macro and dynamic approach to textual information, employing adaptive selection and transformation strategies. It focuses on whether the communicative intent of the source text is effectively conveyed in the target language system, particularly ensuring that the meaning of certain texts in the translation is equivalent to that of the original, thereby achieving the purposes of explanation and effective communication (Lan Dongxiu, 2018: 53). Only by deeply analyzing the communicative intent of the text can the translation achieve equivalent meaning to the original terminology, ensuring the effectiveness of interpretation, dissemination, and communication. During the translation process, translators should strive to overcome linguistic and cultural barriers, maximizing the transmission of the communicative intent embedded in the source text.

Example 5:

ST: 中国围绕打好污染防治攻坚战，重点把蓝天保卫战、柴油货车治理、长江保护修复、渤海综合治理、城市黑臭水体治理、水源地保护、农业农村污染治理七场标志性重大战役作为突破口和“牛鼻子”，制定作战计划和方案，细化目标任务、重点举措和保障条件，以重点突破带动整体推进，推动生态环境质量明显改善。

TT: China has invested a major effort in seven landmark campaigns to keep the skies blue, control pollution caused by diesel trucks, protect and restore the Yangtze River ecosystem, improve the water environment of the Bohai Sea region, improve black and fetid water bodies in cities, protect water sources, and control pollution in agriculture and rural areas. With action plans and concrete targets and measures, these campaigns serve to drive the overall progress and bring notable improvements to the eco-environment.

Analysis: Adaptive transformation at the communicative dimension requires translators to focus not only on the conversion of linguistic information and the transmission of cultural connotations but also to prioritize the communicative level, ensuring that the communicative intent of the source text is effectively reflected in the translation. The transformation at the communicative level represents a further deepening and development of the linguistic and cultural dimensions. Translators need to fully explore the implied meanings in the source text to ensure that the communicative intent is fully conveyed. In this example, the term “牛鼻子” does not simply refer to “the nose of a cow” but signifies the key or crux of a matter. Here, it refers to China’s focus on seven landmark campaigns as critical battles in the fight against pollution, emphasizing these seven areas. Therefore, the translator rendered “牛鼻子” as “invest a major effort” rather than the literal “cow’s nose.” This translation effectively conveys China's determination to tackle pollution and build a shared future for humanity, achieving adaptive transformation at the cultural dimension.

Example 6:

ST: 中国坚持公平、共同但有区别的责任和各自能力原则，坚持按照公开透明、广泛参与、缔约方驱动和协商一致的原则，引导和推动了《巴黎协定》等重要成果文件的达成。

TT: It is committed to the principles of Equity, Common but Differentiated Responsibilities, and respective capabilities, and maintains that negotiations should be open, transparent, inclusive, party-driven and consensus-based.

Analysis: The purpose of translation lies in communication, achieved through “the adaptive selection and transformation of communicative intent during the translation process, aiming to optimally maintain and preserve the communicative ecology of both the source and target texts” (Hu Gengshen, 2013: 238). Therefore, in this sentence, the translator's focus on the communicative dimension is reflected in the idea that China will uphold shared responsibilities with other nations, while recognizing that these responsibilities differ from those of other countries. Accordingly, the translator rendered it as “Common but Differentiated Responsibilities,” using capitalization to emphasize the concept as an international legal principle, thereby safeguarding discursive authority and balancing legal rigor with diplomatic strategy. This approach ensures that the information is fully comprehensible to the target audience while remaining consistent with the cooperative spirit of the original text, achieving the effectiveness of interpretation, dissemination, and communication.

In translation practice, it is impossible to fully compensate for the “loss” of ecological context in the target text. Instead, adaptive selection at the communicative dimension must be employed to convey the core of the concept to the audience. This approach aims to overcome the barriers caused by differences in the nature and content of the source and target cultural ecologies, enhance the audience's cultural awareness, and promote their knowledge generation. By doing so, the audience can gradually understand and accept the political ideas and propositions being communicated, ensuring that the intent of the source text is reflected in the translation. Translation is by no means merely a technical conversion between two languages; rather, it is a coordination and dialogue between two cultures achieved through the medium of language. Its purpose lies in communication, achieved through “the adaptive selection and transformation of communicative intent during the translation process, aiming to optimally maintain and preserve the communicative ecology of both the source and target texts” (Hu Gengshen, 2011).

4. Conclusion

From the perspective of Eco-Translatology, the “adaptive” mechanism serves as the bridge connecting the source and target eco-environments. As Warren (1989: 6) stated, “The survival rule of translation resembles the evolutionary law of living organisms; only through adapting to new environments and self-adjustment can it achieve sustained development.” This dynamic adaptation view is particularly evident when dealing with culturally loaded terms unique to China: translators can flexibly employ strategies such as foreignization or domestication. Eco-translatology offers new interpretations and analyses of the translation process, principles, methods, and the translator's status, providing new ideas and approaches that can help rapidly improve the quality of translations. During the translation process, the translator should play a leading role, apply various translation strategies flexibly in accordance with the adaptation and selection principles in eco-translatology, and strive to achieve the best translation effect. Furthermore, analyzing the methods and strategies of translating the White Paper from the three-dimensional transformation perspective of Eco-Translatology facilitates the international dissemination of China's climate governance policies, deepens the global understanding of China, and fosters goodwill toward the country, demonstrating significant theoretical and practical value. Through such translation research, China's climate governance policies and the unique charm of Chinese culture can be effectively presented to the world, promoting the development of global cultural diversity.

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